REMARKS

Claims 1-6, 8 and 9 are pending in the above-identified application. The claims have been amended so as to recite a method in an appropriate claim format. Support for the changes to claim 1 is found at the paragraph bridging pages 4-5 of the specification. New claims 8 and 9 find support in original claims 5 and 6.

Removal of Specification and Claim Objections

The Examiner at page 2 of the Office Action objects to the graphs on pages 21 and 23 of the specification. The specification has also been objected to because of the title of Table A at page 14. Claims 2 and 7 have been objected as indicated in items (3) and (4) on pages 2-3 of the Office Action.

All of the above-noted objections have been addressed as indicated above. It is submitted that the specification and claims are in proper form such that these objections should be withdrawn.

Removal of Issues under 35 USC 101

Claims 1-7 have been rejected under 35 USC 101 and 35 USC 112, second paragraph. The bases for these rejections have been removed upon the submission of the above-noted amendments to claims 1-6 which are now in a proper format. It is submitted that these claims comply with all applicable requirements under 35 USC 101 and 112, such that these rejections must now be withdrawn.

Issues under 35 USC 103(b) and 103(a)

Claims 1 and 5-7 have been rejected under 35 USC 102(b), as being anticipated by Ilves '988 (WO 97/31988).

Claims 2-4 have been rejected under 35 USC 103(a) as being unpatentable over Ilves '988, and in view of Oppenländer '445 (USP 6,413,445 and DE 198 30 819).

The above-noted rejections are respectfully traversed based on the following reasons.

Present Invention and Its Advantages

The claims of the present application are directed to the use of an aqueous solution containing trimethyl glycine as a coolant fluid and/or as a protective fluid in engine applications. Temperatures in engines, particularly in combustion engines used in automobiles, are very high during the use or driving of the engine and even 130°C can be reached. Typically there may appear rapid and significant changes in the temperature. Additionally so-called "hot spots" may appear in engines, which cause certain problems.

The pressure in engines typically ranges between 0.5 and 1.5 atmospheres, which is significantly higher than the pressure used for example in the applications referred to in Ilves '988 (WO 97/31988). Further, a special phenomenon particularly appearing in engines is cavitation corrosion, which may cause problems. Thus high temperature, great sudden changes in temperature, high pressure and pressure shocks and cavitation corrosion are conditions in engines which must be addressed by fluids which are used to cool and protect engines.

Further, the cooling fluid is in constant contact with several different materials including metals, such as steel, aluminium, copper, copper blends, different plastics and rubbers and other materials, which may be corroded, become brittle and/or wear down easily under unfavorable conditions.

Enclosed as "Exhibit A" is page 357 from the Handbook Kirk-Othmer: *Encyclopedia of Chemical Technology*, 4th edition, volume 3 (1992), wherein the compatibility of elastomeric materials with ethylene glycol is described. At temperatures above 80°C the compatibility is

significantly reduced. Based on the above it is surprising that an aqueous solution containing trimethyl glycine can be used in very demanding engine applications, such as combustive engines without any problems. Problems relating to high operation temperatures, great sudden changes in temperature, high pressure, pressure chocks and potential cavitation corrosion or wearing off, particularly relating to metals such as steel, aluminium, copper, copper blends, different plastics and rubbers and other materials, can surprisingly be avoided, or can at least be significantly reduced by using the fluid according to the present invention, which additionally is environmentally significantly less harmful than presently used cooling fluids in engine applications.

Distinctions over Ilves '988

Ilves '988 is cited as anticipating certain claims. Ilves '988 presents a heat transfer/cooling fluid for solar heat systems, heat pumps, refrigeration equipment, ventilation and air conditioning equipment and the like, which are typically used in technical installations in buildings. The heat transfer/cooling fluid according to Ilves '988 may be used at temperatures between -40°C and +70°C, however, the usually temperature is below 30°C. The operating temperatures in systems using the heat transfer/cooling fluid according to Ilves '988 predominantly are kept constant with no rapid changes in the temperature taking place. Further, the systems and equipment used in the applications disclosed in Ilves '988 operate under atmospheric pressure or under slightly elevated pressure, such that no sudden changes in the pressure take place and thus there appears to be no pressure-induced stress. Ilves '988 generally states at page 1, lines 10 - 11, that heat transfer/cooling fluids are commonly used in industry, technical installations in buildings, refrigeration equipment and motor applications.

Ilves '988 fails to disclose or suggest anywhere the use of a composition containing trimethyl glycine as a cooling fluid in engines or motor applications. On the contrary, on page 4, on lines 18-21, Ilves '988 states that the heat transfer/cooling fluid (according to Ilves '988) is suitable for use in applications in which the temperatures are "low". Such applications

include solar heat systems, heat pumps, refrigeration equipment, ventilation and air conditioning equipment and solar panels. All these applications are systems, wherein relatively low temperatures are used, no sudden changes in temperature or pressure take place and the pressure is a normal atmospheric pressure or at most very slightly elevated pressure. Nowhere in Ilves '988 is it suggested to use a solution containing trimethyl glycine in engine applications as in the method of the present invention, wherein the operation environment is significantly more demanding and different from the above mentioned and the durability requirements relating to pressure, temperature and corrosion are completely different.

Distinctions over Combination of Cited References

Ilves '988 is also cited in combination with Oppenländer '445 against the patentability of the present invention. Oppenländer '445 discloses antifreeze concentrates containing at least one water-miscible alcohol, which lowers the freezing point, (alkylene glycols), at least one corrosion inhibitor and at least one mono or polycyclic aromatic compound having at least one hydroxyl group and high buffer capacity, (4,4'-dihydroxydiphenyl sulfone) as reserve alkalinity donor. This concentrate is based on traditional glycols with improved corrosion protection properties. There is no suggestion in Oppenländer '445 to use compositions without any water-miscible alcohol, particularly alkylene glycol. Trimethyl glycine is chemically a completely different compound from glycols and alcohols and does not belong to the group of mono or polycyclic aromatic compounds.

The hypothetical combination of Ilves '988 with Oppenländer '445 would not have resulted in the present invention because Oppenländer '445 clearly requires the use of alkylene glycols with mono or polycyclic aromatic compounds acting as pH buffering substances and a corrosion inhibitor in engine coolants. There is no incentive to use an aqueous solution containing trimethyl glycine in very demanding engine applications in either of the references. In the present invention it was essential to avoid completely the use of glycols, particularly because they are harmful to the health and environment and degrade very slowly.

The aqueous solution containing trimethyl glycine used in the present invention surprisingly functions in engine applications at least equally or even better than the cooling fluids according to the conventional art. A man skilled in the art would not consider an aqueous solution used in construction technique applications or evaporative cooling applications suitable for use in engines wherein the operating conditions are significantly different and much more demanding. Consequently, it is submitted that numerous and significant patentable distinctions exist between the present invention and both of the Ilves '988 and Oppenländer '445 references, whether taken separately or improperly combined.

It is submitted for the reasons above that the present claims define patentable subject matter such that this application should now be placed in condition for allowance.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.147; particularly, extension of time fees.

Dated: July 3, 2008

Respectfully submitted,

By [signature]

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Enclosures: Exhibit A -- copy of page 357 from the Handbook Kirk-Othmer: Encyclopedia of Chemical Technology, 4th edition, volume 3 (1992)

Exhibit A
Appl No. 10/533,880
Atty Docket No. 2835-0151PUS1

Table 3. Compatibility of Ethylene Glycol with Elastomeric Materials[a]

Trade name or common name	Material	Temperature		
		25°C	80°C	160°C
Adriprene L-100[b]	urethane	good	poor	poor
Black Rubber 3773	polyisoprene, synthetic	good	poor	poor
Buna N	acrylonitrile–butadiene	good	good	
Buna S	styrene–butadiene	good	fair	poor
Butyl Rubber	isobutylene–isoprene	good	good	
EPDM	ethylene–propylene–diene	good	good	good
EPR Rubber	ethylene-propylene rubber	good	good	good
Hycar, D-24[b]	butadiene–styrene, butadiene–acrylonitrile, acrylate emulsion	good	fair	
Hypalon[b]	chlorosulfonated polyethylene	good	poor	poor
Kalrez[b]	tetrafluoroethylene, perfluoromethyl vinyl ether cure site monomer	good	good	good
Natural Rubber Gum	polyisoprene, natural	good	poor	poor
Neoprene 7797	chloroprene	good	fair	
Red Rubber #107	polyisoprene, synthetic	good	poor	poor
Silicone #65	polydimethylsiloxane	good	good	
Viton A[b]	vinylidene fluoride and hexafluoropropylene	good	good	poor

[a]Ref. 2 (see ELASTOMERS, SYNTHETIC).
[b]Registered trademarks.

type of operation the coolant is in: light-duty/intermittent, heavy-duty/diesel, or continuous stationary. Before initial charging of a cooling system with fresh coolant, the system should be free of dirt, oil, and other contaminants. New cooling systems probably only require a water flush to remove solids introduced during assembly of the system. Older systems may require chemical cleaning to remove corrosion products, residual spent coolant, and other contaminants such as scale and oils. The addition of fresh coolant to an improperly prepared system results in rapid deterioration of the condition of the fresh fluid.

Similarly, the antifreeze itself must be prepared properly to extend the life of the fluid. Because many antifreeze solutions contain inorganic corrosion inhibitors such as phosphates and molybdates, the fluids are sensitive to dilution by hard water. Hard water ions, calcium and magnesium, complex with the corrosion inhibitors and render them ineffective in inhibiting corrosion. Additionally, the calcium and magnesium salts of the corrosion inhibitors are typically insoluble in aqueous solutions, and frequently cause scale formation on the walls of the system, thus reducing heat transfer. Consequently, the use of very hard water should be avoided, particularly in the larger engines that require greater heat-transfer efficiency. In addition to the hardness ions, poor quality water of dilution can result in the introduction of corrosive ions, chloride and sulfate, to the system. The use of corrosive water must be avoided to ensure adequate corrosion protection and to extend the life of the fluid and the system.

The service life of an antifreeze can be affected both by the absolute time a